

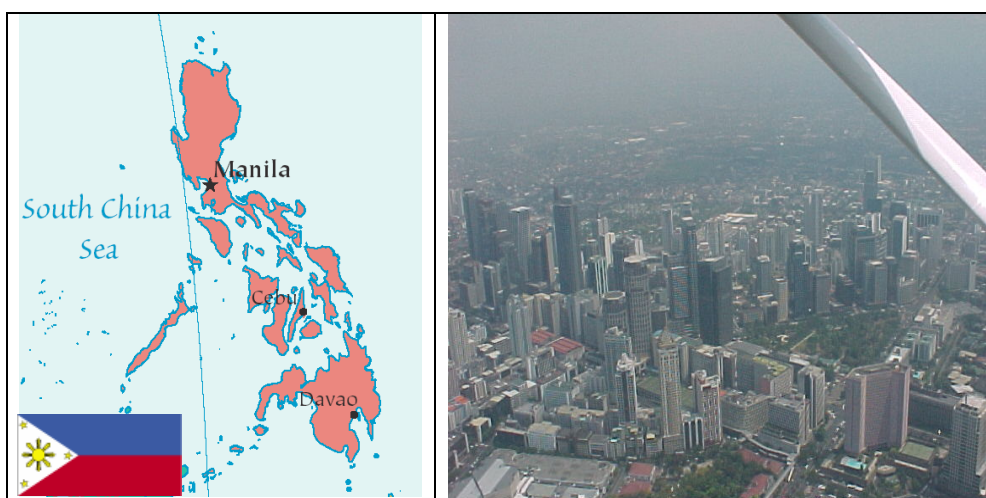
Metropolitan Manila, The Philippines

Disaster Risk Management Profile

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Metropolitan Manila, Philippines



1 Introduction

This section introduces important background material that puts the City into national context.

Note: Makati City and Quezon City have been the EMI focal points within Metropolitan Manila since August 2003, when the 3cd Program was launched. On April 2004, Marikina City was also invited to become part of the group as the third pilot city.

Demographic, economic, social and cultural characteristics

Metro Manila (*Kalakhang Maynila*), is the capital of the Republic of the Philippines and is officially called the National Capital Region (*Pambansang Kabiserang Rehiyon*). Although it is the smallest region, it is the most populous and the most densely populated among the Philippines regions. The country itself is a South-east Asian archipelago between the Philippine Sea and the South China Sea, east of Vietnam that extends over a 298,170 sq km of land area. Population estimates are 86,241,697 people (July 2004) with a population growth rate of 1.88% (2004 est.). Currently, the Philippines attains a moderate economic growth, buoyed by remittances by its large overseas Filipino workforce, booming information technology industry, and cheap labor in other sectors. Although the GDP expanded from a 0.6% decline in 1998 to 4.2% growth in 2003, 40% of the population were under the poverty line in 2001 ¹.

Governance style

The Philippines has a unitary form of government with a multi-tiered structure. It is a presidential republic with a bi-cameral legislature (24 members Senate, and 250 member House of Representatives). The central government operate through some 20 departments/agencies with the President as the head of state and government, as well as the commander-in-chief of the armed forces. The president is elected by popular vote to a 6 year term.

Beneath the central government is the three-level local government units (LGUs) hierarchy: provinces are divided into municipalities and component cities, which are further subdivided into barangays, the smallest political unit. The Republic Act (R.A.) No. 7160 (better known as the **Local Government Code of 1991**) states that a barangay may be created out of a “contiguous territory which has a population of at least two thousand (2,000) inhabitants [...] except in cities and municipalities within Metro Manila and other metropolitan political subdivisions or in highly urbanized cities where such territory shall have a certified population of at least five thousand (5,000) inhabitants.”² Being the basic political unit, the barangay “serves as the primary planning and implementing unit of government policies, plans, programs, projects, and activities in the community, and as a forum wherein the collective views of the people may be expressed, crystallized and considered, and where disputes may be amicably settled.”³

There are 79 provinces grouped into 17 regions⁴. However, cities share the same functions and authorities of a province but are subdivided directly into barangays. Each level of local government has Sanggunians (councils) as their own legislative bodies. Local executives (mayors, governors) and members of local legislatures are also elected by their respective constituents.

National hazardscape

The Philippines is subject to various types of hazards due to its geographical location and physical environment being in the “Pacific Ring of Fire”. This ring is a zone of frequent earthquakes and volcanic eruptions that encircles the basin of the Pacific Ocean. Thus, the Philippines is prone to landslides; active volcanoes; destructive earthquakes and tsunamis. It is also affected by fifteen and struck by five to six cyclonic storms (typhoons) per year. For landslides alone, conservative estimates recorded that 18,339 lives were lost in 2000 and PhP42 million worth of property were damaged in

2003⁵.

National disaster management structure and relevant legislation

Presidential Decree (P.D.) no.1566 (June 11, 1978) formally established the National Disaster Coordinating Council (NDCC) (which replaced the National Disaster Control Center created on October 19, 1970), Regional Disaster Coordinating Councils (RDCC) and Local Disaster Coordinating Councils.

The National Disaster Coordinating Council (NDCC) is the focal inter-institutional organization in disaster-risk management. It establishes the priorities in the allocation of funds, services, and relief supplied and plays an advisory role to lower DCCs through the Office of Civil Defense by issuing guidelines. The NDCC issues policy guidelines on emergency preparedness and disaster operations.

P.D.1566 (1978) also asserts a policy of self-reliance among local officials and their constituents in responding to disasters or emergencies; explains the organization of disaster coordinating councils and their duties and responsibilities and gives the following guidelines for self planning of disaster operations to be observed in all planning activities⁶:

- A National Disaster and Calamities Preparedness Plan shall be prepared by the Office of Civil Defense for approval by the President;
- The planning factors and guidelines for all national and government entities shall conform to the approved Disaster and Calamities Preparedness Plan;
- All implementing plans shall be documented and copies thereof furnished the National Disaster Coordinating Council through the Office of Civil Defense ...
- Implementing plans shall be revised and updated as necessary and copies of the updated plan shall be furnished the National Disaster Coordinating Council through the Office of Civil Defense.

The decree also requires periodic drills and exercises; and gives authority for government units to program their funds for disaster preparedness activities in addition to the 2% calamity fund in previously allocated in the PD 474 (1974). This was further amended by Republic Act No. 8185 (1996) strengthening further the capabilities of local governments in disaster management, stating that:

“Five percent (5%) of the estimated revenue from regular sources shall be set aside as

annual lump sum appropriations for relief, rehabilitation, reconstruction and other works or services in connection with calamities which may occur during the budget year. Provided, however, that such fund shall be used only in the area, or a portion thereof, of the local government unit or other areas affected by a disaster or calamity, as determined and declared by the local sanggunian concerned [...] The local development council shall more monitor the use and disbursement of the calamity fund.”⁷

The Implementing Rules and Regulations (IRR) of PD 1566 defined the disaster management activities of DCC member-agencies as well as procedures and guidelines for inter-agency coordination and dissemination of information in the pre-disaster, during disaster, and post-disaster phases. ([Appendix A](#))

An award called “Gawad Kalasag” is given by the National Disaster Coordinating Council every year since 2002 “to Local Disaster Coordinating Councils (LDCCs), humanitarian organizations, NGOs, auxiliary/volunteer groups, and international and local organizations to recognize exemplary deeds and achievements in the field of disaster management. The NDCC also presents special awards to individuals who exemplified heroic acts in safeguarding the lives of other people in times of disasters and emergencies. 24 awards and 8 special citations will be awarded to various organizations, local governments, groups and individuals for 2004.”⁸

National land use management system and relevant legislation

The Housing and Land Use Regulatory Board (HLURB), formerly the Human Settlements Regulatory Commission, is the “national government agency tasked as the planning, regulatory and quasi-judicial body for land use development and real estate and housing regulation. These roles are done via a triad of strategies namely, policy development, planning and regulation.”⁹

Legislation related to national land use management includes:

- Presidential Decree no. 957 (1976) “subdivision and condominium buyer's protective decree” -amended by P.D. 1216 (1977)- which regulates the sale of subdivision lots and condominiums, providing penalties for violations.
- Presidential Decree No. 1216 (1977) which defines "open space" in residential subdivisions and amends section 31 of P.D. 957 (1976) requiring subdivision owners to provide roads, alleys, sidewalks and reserve open space for parks or

recreational use¹⁰.

- Presidential Decree No. 1566 (1978); and R.A. 6541 (National Building Code of the Philippines – 1972).
- The Batas Pambansa Blg. 220 Act (1981) “known as: *The Judiciary Reorganization Act of 198*” which authorizes the Ministry of Human Settlements to establish and promulgate different levels of standards and technical requirements for economic and socialized housing projects in urban and rural areas from those provided under Presidential Decrees 957 (1976), 1216 (1977), 1096 (the National Building Code of the Philippines - 1977), 1185 (Fire Code of the Philippines - 1977);¹¹
- Executive order no. 648 (February 7, 1981) which reorganized the Human Settlements Regulatory Commission.

The HLURB Resolution, Series of 1992 has a provision against constructing buildings within 5m of an active fault. Also, The National Structural Code of the Philippines in its fifth edition (2001) introduced two important improvements: the introduction of the near-fault criteria which gives “a higher base shear for a building near a known active fault compared to the same building at a remote location. And [...] rewards structures with more redundancy and alternative load paths”^{12*}

Integration of Disaster Risk Management in development programs

In 1991 the Philippines Government started a process to integrate disaster mitigation and sustainable development issues within the Medium Term Philippine Development Plans, under the Development Sector Administration. Within this framework, local governments are required to integrate their disaster management plans into their respective local development plans. The most recent “Medium-Term Philippine Development Plan 2004-2010”¹³ regarded the issue of disaster risk management in different areas:

- Concerning agribusiness, it adopted a policy aiming to “increase capital productivity and investments through the reduction and appropriate management of risks inherent in agriculture” which included “Emergency assistance and disaster-

*A World Bank 2004 Paper said that “Since 2000, at least two proposals for new legislation have been submitted: a second draft bill is currently within the legislature, although this one appears to have stalled.”

mitigation projects for calamity-stricken areas” and “Geohazard Assessment Program”.

- When discussing the issues of the environment and natural resources, the plan expressed the need for “geohazard mapping in order to determine the most vulnerable areas to landslides and guide development plans on settlements, industries and production areas. More importantly, this will guide relocations and serve as an alert system for existing settlements located in highly vulnerable areas. Presently, the geohazard mapping for regions that are most frequently visited by typhoons (Bicol and Eastern Visayas) or experience excessive rainfall (CARAGA) have been initiated.” The plan described both structural and nonstructural measures to “Mitigate the occurrence of natural disasters to prevent the loss of lives and properties”. Nonstructural measures include:
 - Complete the geohazard mapping of the remaining 13 regions;
 - Conduct soil stability measures (e.g., reforestation and planting in river banks) for landslide-vulnerable areas; and
 - Ensure integration of disaster preparedness and management strategy in the development planning process at all levels of governance. This shall be done through the following activities, namely, among others: periodic risk assessments, updating of respective land use policy based on the assessment, conduct of disaster management orientation/training among LGU officials and concerned local bodies, institutionalization of community-based mechanisms for disaster management (e.g. inclusion of legitimate disaster management organization at various Disaster Coordinating Councils), and advocating for the bill on “Strengthening the Philippine Disaster Management Capability”.

Structural measures focus on keeping “at the optimum the conveyance capacities of existing river channel floodways, drainage canals, esteros[▲] through riverbank protection, dredging/desilting, observance of river easements, relocation of informal settlers, proper disposal of garbage, and efficient maintenance in coordination with LGUs;” and providing an “adequate flood control and drainage facilities in all flood/sediment disaster prone areas to mitigate flooding as well as rehabilitate and improve existing facilities. The plan enlisted the priority flood management

[▲] Originally: Esteros are the artificially built canals during the Spanish era in Manila to relieve the city of floods. It is sometime used to refer to any man-made water way wherein the sewage goes.

projects.

- Also, the plan promotes “a stronger, stable and deeper financial system” and proposes implementing “a coordinated disaster recovery plan to ensure uninterrupted operations or timely reopening of financial sector institutions in the aftermath of a catastrophic event”.
- In the poverty reduction part of the plan, the highest priority and focus were given to rural and agricultural development. This includes a “more strategic, effective and timely interventions and safety nets during natural disasters and economic shocks”. Victims of disasters and calamities as vulnerable members of the society “shall be given preferential access to social assistance, social protection and safety nets.” In particular through the following:
 - Strengthen emergency response capability, particularly at the local level, through an improved delivery of humanitarian assistance to disaster affected populations including the development of a set of minimum standards on humanitarian assistance and improve the tool in conducting Damage Needs and Capacity Assessment.
 - Promote culture of resilience through continuous training and education, including dissemination of readily understood information materials on disaster risks and protection options to citizens and integrate disaster risk reduction in school curriculum at the primary and secondary levels.
- Also, the plan states that “more policemen will be trained to respond more efficiently during emergencies and disasters.”

Significance of the city to the nation

Metro Manila occupies 637 km² of land. Its share in the total economy’s GDP was valued at PhP 835.6 billion (US\$28.4) billion in 1997 or 32.7 percent. In the same year, the per capita GDP of Metro Manila is PhP 82,832.38 which is about 2.5 times of the national figure. According to the 2000 census, Metro Manila’s population is 9,906,048, which is roughly 14% of the national population. The population of Metro Manila can be significantly increased in the daytime on work



Figure 1: Metro Manila cities and municipalities (as of 1999)

days when thousands of people commute to work or study during the day.

Metro Manila has a dense network of roads and rapid transit rail: The Light Rapid Transit and the Metrorail, which is easing surface traffic congestion. Metro Manila has 7,331 km of roads of varying widths.

Geographical setting of the City

Manila is a coastal city located in the island of Luzon around the Pasig River which links the Manila Bay with Laguna de Bay and is utilized as a transport gateway connecting Manila with Mandaluyong, **Makati**, Marikina and Pasig. Metro Manila has a central plateau where the central business district of **Makati** is located and alluvial plains along the Pasig River and Laguna Lake. It is bounded in the northeast by the southern tip of the Sierra Madre mountain range which forms the Marikina valley. Coastal areas along Manila Bay and the Pasig River delta sit on soft sediment instead of more stable volcanic rock.

2 Inter-City Linkages

This section provides information on how the City functions in terms of interactions between relevant components

Internal division of the City

Metropolitan Manila was created as a public corporation in the Presidential Decree No. 824 November 7, 1975. The Decree followed a referendum on February 27, 1975 among the residents of the **Greater Manila Area** authorizing the President to restructure the local governments of the four cities and 13 municipalities thereof into an integrated unit with the manager or commission form of government. The decree vested Metropolitan Manila with the “powers and attributes of a corporation including the power to make

Location	Area(Sq. Km)	Population (2000)
National Capital Region	637	9,906,048
Cities	579.9	9,033,183
Quezon City	166.2	2,173,831
Kaloocan	55.8	1,177,604
Valenzuela	47	485,433
Muntinlupa	46.7	379,310
Las Piñas	41.5	472,780
Marikina	38.9	391,170
Manila	38.3	1,581,082
Parañaque	38.3	449,811
Makati	29.9	444,867
Mandaluyong	27	278,474
Malabon	23.4	338,855
Pasay	13.9	354,908
Pasig	13	505,058
Municipalities	57.1	872,865
Taguig	33.7	467,375
Pateros	10.4	57,407
San Juan	10.4	117,680
Navotas	2.6	230,403

contracts, sue and be sued, acquire, purchase, expropriate, hold, transfer and dispose of property and such other powers as are necessary to carry out its purposes.”¹⁴ The Republic Act No. 7924 (1995) constituted Metropolitan Manila into a “special development and administrative region subject to direct supervision of the President of the Philippines.”¹⁵ Currently, Metropolitan Manila is officially called the **National Capital Region (NCR)** and is composed of 17 local government units: 13 cities and 4 municipalities.

Makati is the financial center of the country and the main offices of the national government agencies are located mainly in **Quezon City**, which as provided by a law passed in 1939 was conceived to become the government center as soon as the Philippines became a country independent from the United States. **Marikina City** shows a concentration of large manufacturing firms and small to medium enterprises.

Quezon, Makati and Marikina, have a different geographical setting, vary in size and population and have different characteristics in terms of its Disaster Risk Management Organization and Development. The following chart shows some of the most relevant characteristics of each one of these cities.

	Quezon	Makati	Marikina
Size	166.2 Km ²	27.36 Km ²	21.5 Km ²
Population	2,390,688 est. 2005	471,379 c. 2000	447,000 in 2004
# Barangays	142 in four districts	33 in two districts	14 in two districts
Pop. Growth	1.92%	-0.5%	2.34%
City Revenues	Small to medium scale business. Services provision. Finished product distribution	Financial and Banking Sector Business & Commerce	Large Manufacturing Firms. Small to medium enterprises
Land Use	45.5% residential		38% residential
Relevant Policy	Construction of major transport and infrastructure to reactivate the economy	DRM criteria is introduced in the city planning procedures	Tax incentive system to promote industrial sector investment. Disaster Reduction Program, goal formulated

Governance/management style

The management of Metro Manila has changed over time. In 1975, the Metro Manila Commission was created (PD 824), to be replaced by the Metropolitan Manila Authority (MMA) created in the Executive Order (EO) 392 (1990) issued by President Corazon Aquino. MMA was weaker in terms of both executive and revenue powers. Metro Manila Commission had legislative powers to enact and approve ordinances and resolutions; and was authorized to levy and collect taxes and fees and issue bonds and other instruments of indebtedness. But its successor MMA had no legislative authority and further lost its authority to collect taxes completely accruing to it by the passage of the Local Government Code (1991).

The most recent institutional mean to achieve harmonization in Metro Manila has been provided by law to the **Metropolitan Manila Development Authority (MMDA)** created in the Republic Act No. 7924 (1995) and currently headed by Chairman Bayani F. Fernando.

1975	1986	1990	1995	Current
Metro Manila Commission		Metropolitan Manila Authority (MMA)	Metropolitan Manila Development Authority (MMDA)	

MMDA plans, supervises and coordinates with various other organizations as well as the local government units of the component cities and municipalities “with prejudice to the autonomy of local government” which otherwise is provided by the Local Government Code of 1991. The **Metro Manila Council (MMC)** is the governing board and policy making body of the MMDA. The MMC consists of the mayors of the cities and municipalities composing Metro Manila, the president of the Metro Manila Vice Mayors League and the president of the Metro Manila Councilors League. Non-voting members of the council are the heads of the Department of Transportation and Communications (DOTC), Department of Public Works and Highways (DPWH), Department of Tourism (DOT), Department of Budget and Management (DBM), Housing and Urban Development Coordinating Committee (HUDCC), and Philippine National Police (PNP). The MMC is headed by the MMDA chairman appointed by the President and vested with the rank, rights, privileges, disqualifications, and prohibitions of a cabinet member.

The chairman is assisted by a general manager, an assistant general manager for finance and administration, an assistant general manager for planning and assistant general

manager for operation, all of whom are appointed by the President with the consent and concurrence of the majority of the Council, subject to civil service laws, rules and regulations.

The Metropolitan Manila Development Authority has the following functions¹⁶:

- Formulate, coordinate and regulate the implementation of medium and long term plans and programs for the delivery of metro-wide services, land use and physical development within Metropolitan Manila, consistent with national development objectives and priorities.
- Prepare, coordinate and regulate the implementation of medium term investment programs for metro-wide services which shall indicate sources and uses of funds for priority programs and projects, which shall include the packaging of projects and presentation to funding institutions;
- Undertake and manage on its own metro-wide programs and projects for the delivery of specific services under its jurisdiction subject to the approval of the Council. For this purpose, MMDA can create appropriate project management offices;
- Coordinate and monitor the implementation of such plans, programs and projects in Metro Manila; identify bottlenecks and adopt solutions to problems of implementation;
- The MMDA shall set the policies concerning traffic in Metropolitan Manila, and coordinate and regulate the implementation of all programs and projects concerning traffic management specifically pertaining to enforcement, engineering and education. Upon request, it shall be extended assistance and cooperation, including but not limited to, assignment of personnel, by all other government agencies and offices concerned.
- Install and administer a single ticketing system, fix, impose and collect fines and penalties for all kinds of violations of traffic rules and regulations, whether moving or non-moving in nature, and confiscate and suspend or revoke driver's licenses in the enforcement of such traffic laws and regulations, the provisions of RA 4136 and PD 1605 to the contrary notwithstanding. For this purpose, the Authority shall enforce all traffic laws and regulations in Metro Manila, through its traffic operation center, and may deputized members of the PNP, traffic enforcers of local government units, duly licensed security guards or members of non-governmental organizations to whom may be delegated certain authority, subject to such conditions and requirements as the Authority may impose.

- Perform other related functions required to achieve the objectives of the MMDA, including the undertaking of delivery of basic services to the local government units when deemed necessary, subject to prior coordination with and consent of the local government unit concerned.

It is worth mentioning that RA 7924 which created MMDA prescribed for working closely with NGOs, peoples' organizations and the private sector. This relationship was not stressed in the work of MMDA predecessors. Besides, like the MMA, MMDA has no legislative powers and cannot levy and collect taxes. Its revenues come from its Internal Revenue Allotment (IRA); subsidies from the national government; contributions of member LGUs; and fines and fees imposed and collected for the services provided. As such, the MMDA is highly dependent on central government subsidies.

Formal arrangements

As a means to formalize understanding about roles and responsibilities among government and private entities, a memorandum of agreement (MOA) or memorandum of understanding (MOU) may be entered by the agreeing parties. For example, it was reported that a megadike project to relieve flooding in the city would be turned over by the Department of Public Works (DPWH) to the MMDA¹⁷ through an MOA. A year before, the responsibility for preventing floods in Metro Manila was transferred from the DPWH to MMDA. The MOA therefore clarifies the responsibility with respect to project management and implementation, as well as maintenance and operation.

In terms of linkages, local government units of Metro Manila have established sister or friendly ties with cities overseas. For instance, Makati has a number of sister cities" and friendly cities in both international and national levels. There is no information whether these arrangements are being used in the disaster risk management arena.

Relevant legislation/regulations

The Chairman of Metropolitan Manila Development Authority (MMDA) is the Chairman of the Metropolitan Manila Disaster Coordinating Council (MMDCC) with the Mayors of the seventeen cities and municipalities comprising Metropolitan Manila, the Directors of National Government Agencies; and Heads of NGO's situated in the National Capital Region to be determined by the MMDA Chairman as members. The Regional Director, Office of Civil Defense, National Capital Region, acts as the

Executive Officer of the council.

3 Land Use Management

This section deals with land use planning and management practices that focus on the control of existing hazards and the reduction of future hazards.

Relevant legislation

Beside land use management legislation on the national level, there is legislation on the Metro Manila level and local levels. The New Zoning Ordinance (1953) suspended the Ordinance No.2830 enforced in Manila since October 28, 1940. In March 1981, the Zoning for the National Capital Region was enacted and still in effect. It describes the types of zoning and the procedures of implementation; and includes the following articles and sections related to urban disaster prevention:

- Article2 – Section2: One of the purposes of the zoning ordinance is to secure safety. a- to promote and protect public health, safety, peace, morals. d- and to insure safety from fire and other dangers.
- Article5 – Section6: Dwelling on the rear lots should have access to public roads with minimum width of 4m.
- Article5 – Section7: All structures shall be located on lots so as to provide safe and convenient access for servicing fire protection units.
- Article5 – Section9-c: At least 5% of total areas of development should be an open space for playground purposes, provided that more than ten families are located. The size of each background should be 100 m² at least.
- Article6 – Section2: Among the guidelines of locating some selected establishments: a filling station shall be located at least 200m distance from schools, hospitals, churches and similar institutions. A buffer strip and adequate fire fighting equipments are also required.

The City Ordinance No. 2000-078 “Zoning Ordinance” of **Makati** states:

- Article II, Sec 2, No.5 states that it is the purpose of the said ordinance to regulate the location, use, and density of the buildings and the land in such a manner as to avoid unnecessary congestion and demand on utilities and services, and to enhance convenience of access to property and to safety from fires and other dangers.
- Article IV, Sec 38 states that all land use, developments or constructions shall

conform to environmental standards of the national building code, the clean air act and other applicable laws, rules and regulations.

Responsible agents and their relationship

“MMC is the agency that issues building clearances as a prerequisite for the issuance of a building permit by the local government unit. The problem of non-conforming and land use was aggravated by the issuance of clearances even to those that are clearly in violation of the zoning ordinance. While the zoning ordinance provided the spatial allocation for various urban activities (residential, commercial, industrial, etc.) it did not provide clear regulatory standards on the intensity of various development activities. Aside from the inherent weakness of the ordinance itself, it suffered from an inadequate enforcement system. Thus, the objectives of the ordinance were often overwhelmed by the real state market mechanism and the demands of market economy. Environmental objectives of the ordinance were, therefore, compromised on the basis of a more pragmatic private sector considerations.”¹⁸

All LGUs, municipalities, and cities were required to have their own **Comprehensive Land Use Plan (CLUP)** and submit it to the Housing and Land Use Regulatory Board (HLURB) by the end of December 2002 for ratification. But only 7 cities have complied with this ordinance, namely: Pasig, Las Piñas, Parañaque, **Makati**, Marikina, Muntinlupa, and Mandaluyong until 2004.

Effectiveness of current arrangements

4 Vulnerability Issues

This section highlights current issues pertaining to vulnerability issues including information on at-risk groups and hazard-prone locations.

At-risk groups

In 1997, the government estimated that 7.1% of the population of Metro Manila lived below the poverty line. (The poverty line was defined at PhP71,800 per year for a family of five.) The economic structure of the cities and municipalities comprising Metro Manila itself differs in each local government unit, just as the physical and the social vulnerabilities differ.

The poor (defined by **Makati** City as people who cannot afford the basic needs like

food, shelter, clothing and education) are among the vulnerable population whether in normal times or in times of disasters. According to the Family Income and Expenditures Survey (FIES), **Makati** had 1,714 families below the poverty line in the year 2000. Assuming that a household is equivalent to the family, this is only 1.6 percent of the 103,981 households in **Makati** City.

For the benefit of its senior citizens (at least 60 years old), **Makati** city executes the **Makati** Health Card Program (also called Yellow Card) which provide subsidized medical and hospitalization services at the **Makati** Medical Center, which is considered the premier private tertiary hospital in the country.

At-risk locations

Metro Manila has pockets of informal settlements where dwellings are often made of inferior material, access to fire and emergency rescuers is poor, and in general these areas are environmentally poor. In 1996, Metro Manila as a whole had about 276 squatter communities where about 36% of the almost 10 million residents are located. Based on the MMEIRS study, the “informally occupied area” is 1,559 ha, which is 2.5% of the total land area of Metro Manila. **Quezon** City has the largest informally occupied area, 1,211 ha. Only 6 ha of informal settlements are found in **Makati** City. The response from the City of **Makati** about informal settlements is that 10,734 families live in informal settlements. Assuming that the average household size of 4.5 applies, the population living in informal settlements is estimated at 48,303. This figure is 10.25% of **Makati**'s population of 471,379 as obtained from NCSO figures for 2000.

In July 2002, the National Housing Authority (NHA) estimated that the total number of informal settlers in Metro Manila reached a total of 726,908 families in 3.9 million housing units and urban poor communities in the megacity.

City policies on vulnerability alleviation

Programs in this area include the **Relocation and Resettlement Program** where LG and NHA relocate squatters from public lands or vulnerable areas to places outside Metro Manila; the **Medium Housing Program (NHA)** where squatter families are relocated inside the city in new high and medium rise flats; and **Slum Improvement Program/Zonal Improvement Program** where infrastructure and houses are improved through the adjustment of various rights and space structures without relocating the families. Through a scheme called Community Mortgage Programme, settlements may

be improved in situ or a resettlement in a safer location may be done with legal assurance of land tenure. A non-governmental organization or a designated city department acts as intermediary. It assists the community (in an informal settlement) by having consultations with the members, who are first organized as a community organization. The intermediary also assists the community to obtain financing and negotiations to acquire the land. A tripartite partnership is forged among the community, the intermediary and the local government. Assurance of land tenure often results in low-income residents more willing to invest resources in house improvements as well as ensuring better environmental quality and safety. Examples of these are the experiences of: (a) the Putatan Urban Poor Association in Muntinlupa City, and (b) the riverine communities in Malanday and Tumana areas in Marikina.¹⁹

5 Disaster Risk Management Arrangements

This section highlights how the City manages public safety issues, including the functional arrangements of emergency services, risk assessment practices and risk communication mechanisms.

Functional arrangements

In time of disaster, according to the Metropolitan Manila Emergency Preparedness Plan, the MMDCC coordinates disaster response activities of the local DCCs in Metro Manila through its disaster operations center. The Plan provides an integrated system of direction, control and utilization of resources during a disaster. The plan's current focus is on disaster preparedness and response. The disaster management plan at the national government level and at the city level incorporates: disaster preparedness, disaster response, and capacity building. There are also Standard Operating Procedures (SOPs) related to the tasks before, during, and post disaster, beside various operational plans.

Santiago (2001)²⁰ pointed out some of the projects MMDA is now taking are as follows:

- Mapping and paleoseismology of active faults
- Seismic microzonation of Metro Manila
- Relocation of informal settlers from risk areas
- Reformulation of land use and zoning
- Amendment of building code and other laws or regulations

The Internal Revenue Allotment (IRA) provided by the Local Government Code gives advantages to LGUs with large area such as **Quezon City**. **Makati City**, which has earned significantly high revenue before the IRA came into being, has invested significantly in disaster related activities and facilities such as health services. In addition, the normal health service has effectively integrated or built in the factor whenever a disaster strikes for any citizen to have relative access to medical help.

Risk Assessment

Metropolitan Manila is composed of a coastal margin with the reclaimed area in Manila Bay, the central plateau, and the Marikina valley. The city of Manila and its surrounding cities are in the coastal margin prone to flooding during the rainy season. Within Marikina valley as well, areas along the coast of Laguna de Bay are also frequently faced by such flooding. Many earthquake faults, such as the Marikina Valley Fault, Philippine Fault, Lubang Fault, Manila Trench, and Casiguran Fault, are to found in a north-south direction.

Floods in the city are aggravated by heavy rainfall in the wet season (from May to October), the monsoon period, poor drainage due to solid waste in the canals and natural streams as well as illegally constructed structures along or above the streams. The Pasig River which drains over half of the land area of Metro Manila, serves as the outlet of Laguna Lake to Manila Bay which joins with the South China Sea. It is also a tidal river; in the dry season, backflows from Manila Bay reaches as far as Laguna Lake.

Cited among the five most severe hazard impacts in Metro Manila in the survey responses were the major fires at the Ozone Disco in March 1996 and at the Manor Hotel in August 2001 both of which occurred in **Quezon City**. In July 20, 2000, the main solid waste disposal site then, the Payatas dumpsite was the scene of a slide caused by heavy rainfall that resulted in 224 dead and 38 still reported as missing.

On 25 August 2004, massive floods and landslides resulted from the continuous heavy rains accompanying Typhoon Aere and Typhoon Chaba affected 13 cities and two towns in Metro Manila, mostly in **Quezon City**, in addition to nearby provinces. The floods affected a total of 4,392 families, or 24,108 persons, with eight people confirmed dead and three injured²¹. For two consecutive days, Metro Manila experienced moderate to heavy rains that caused the submergence of lowlying areas.

Also, a strong earthquake with a magnitude of 6.4 shook Luzon Island where Metro

Manila is located. It lasted for more than a minute on the night of October 8, 2004, three weeks after the 6.2 quake believed to be on the same fault line, along the Manila Trench. The magnitude 7.7 earthquake in Luzon (1990) killed nearly 2,000 people.²²

The first known multihazard assessment for Metro Manila was done in 1976 through a United Nations Disaster Relief Organization (UNDRO) team. The UNDRO study describes the vulnerability to a few hazards besides earthquakes as follows:

- **Typhoons:** The whole of Metro Manila may be assumed to be equally vulnerable to typhoons and wind patterns unlikely modified, except for the Guadalupe ridge (in **Makati** City), which “may be marginally more sensitive to winds.”
- **Tsunamis:** Historical records mention waves of no more than 1 m high. The report mentions: “the configuration of Manila Bay has an almost damping effect on tsunami waves.”
- **Volcanoes:** Past violent eruption of Taal volcano, which is about 60 km south of Manila, resulted in ashfall in Manila, however, Metro Manila is “not likely to be seriously affected by volcanic eruptions (from Taal volcano) or its related seismic activity. Much after the UNDRO report, another volcano, Mount Pinatubo which erupted in 1991, brought ashfall to Manila which was difficult to deal with as rains fell, thereby disrupting normal activities.

Earthquake risk assessments were done in 2000-01 by PHIVOLCS with the NDCC, and in 2002-04 through the MMEIRS study. The latter study generated earthquake scenarios for different models thus making it possible to estimate potential damage to residential buildings, fire damage, human casualties, infrastructure and lifelines damage. Areas where different physical vulnerabilities were expected were determined. As an outcome of the MMEIRS Study, hazard maps are now used for risk identification purposes. Studies on physical and social vulnerability have become available through the MMEIRS study.

Hazard impacts are not recorded systematically in a database, nor are losses associated with those disasters recorded at the city level. The city relies on monitoring carried out by a national agency, the Philippine Institute of Volcanology and Seismology (PHIVOLCS) which maintains seismological network and accelerometer network to monitor earthquakes and volcanic activity. Other relevant national offices such as the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and a few libraries keep records. Historical records of earthquake and flood

occurrences in the old city of Manila are available from the Spanish colonial times.

The website of the National Disaster Coordinating Council - Office of Civil Defense (<http://www.ndcc.gov.ph>) has:

1. A summary of natural and man-made disasters from 1991 to 2001 with specific aggregated information on casualties, affected population, houses damaged and value of damage to property with information on specific major national disasters such as the Luzon earthquake of July 16, 1990..
2. Aggregated statistics over regions affected by destructive typhoons from 1970 to 2003.

Risk Communication

To prepare citizens against disasters, the national press, radio and television media have contributed to increasing awareness. Non-governmental organizations and the private sector also contribute to public information and community participation. Several organizations, both government and non-government organize seminars, workshops and lectures towards the goal of mitigating risks through better informed and more prepared citizenry. Disasters or hazards (earthquake, typhoon, volcanic eruption) as topics to be learned and discussed are included in the elementary science curriculum of Grades 5 and 6 students.

6 Disaster Risk Management Vision

This focuses on what City decision-makers and/or other sectors want to put into place with respect to DRM Vision details

In the city workshop held on August 17, 2004, 81 registered participants from **Makati** and **Quezon** Cities discussed what they thought could be the vision for the city as it relates to disaster risk management, from a functional sector perspective as well as by a mixed group. The word “community” was a prominent keyword in all vision statements.

First group discussion:

Despite the fact that grouping was by function, the participants appeared to have gone beyond the concerns of their particular sector. Group 2 which issued a lengthy two-part

vision was the exception as their statement tended to reflect the response nature of the sector.

Group 1: Public Safety

A resilient community with well-educated, informed and prepared constituents to face any danger.

Group 2: Response and Rescue

- 1 To systematically organize, develop and sustain an informed, valued and self-reliant community who will exemplify the practical will and leadership in responding to the needs of the most vulnerable in times of disaster and other calamities through a reliable communication system, efficient reporting, monitoring and evaluation system, and a sound financial status where Barangay Disaster Coordinating Council will be legally authorized to use calamity funds in the procurement of equipment/supplied even during the pre-disaster phase, and the conduct of regular treatment on FA and CPR and other training that calls for more on disaster preparedness and mitigation instead of relief and rehabilitation for a safe and healthy citizenry.
- 2 We envision a metropolitan emergency response sector that is totally prepared through a unified system of effective response during disasters and emergencies.

Group 3: Health, Education, Community and Media

A less vulnerable and empowered community in reducing risk and managing disasters.

Group 4: Planning and Engineering, Environment and Private Sector

Safe and disaster-prepared community.

Second group discussion:

In the second group discussion consisting of mixed groups, the vision was stated in the following ways:

- Safe and disaster-prepared community.

- We envision a well-informed and fully prepared community for all types of disaster with the full support of the local and national government alongside the private sectors and NGOs.
- A highly responsive and resilient community for a safe and protected built and natural environment.
- A self-reliant and disaster-prepared community with a unified system for effective response.

These comments suggest that participants have well-developed ideas of what they wish their respective cities to achieve with respect to disaster risk management. As a follow-up, these ideas need to be linked to the city vision and mission statements that were developed previously, as part of the respective city's strategic/development plans. Approaches need to be pursued as to how community-wide reduction, preparedness and safety measures can be implemented.

Putting this into a wider context, according to current city administration of **Quezon** City, its mission is "to provide quality service which will make **Quezon** City an ideal community where people live, work and do business in a hospitable, progressive and peaceful environment." According to the official website of the city, **Makati**'s vision statement is: "**Makati** shall lead the Philippines in the 21st century: its global and national enterprises, leading the creation of a new, responsible and sustainable economy; its citizens, productive, empowered and God-loving." The city government's mission is: "Through breakthrough technologies and enlightened, citizen-centered governance, the city shall promote intense, enhancing and enabling interactions among the members of the community driving the national and global leadership of its resident enterprises, and ensuring richer, fuller, and God-centered lives for its citizens."

In addition to the above, a vision statement was created in the recent JICA funded study on earthquake impact reduction called the Metro Manila Earthquake Impact Reduction Study (MMEIRS) conducted between August 2002 and March 2004. This vision articulated "a safer Metropolitan Manila for earthquake impact."

7 Issues

This section details how the existing DRM system can be strengthened or developed. The focus is on issues such as (a) bottlenecks that impede the initiation and continuity / sustainability of desired actions, including SPs (b) capacities that need to be improved.

A 2004 World Bank study identifies several issues that are relevant to disaster risk management (DRM). For example, the nation's disaster management system is highly centralized, focusing on the high-profile national Office of Civil Defence (OCD), that has a marked influence on all lower level components at regional, local and barangay levels. The existing structural arrangement is a difficult system to operate given the top-down approach that characterises Philippines disaster management. Merging tiers and some local groups at the barangay level into clusters (perhaps aligned to hazardscape clusters, such as floodplains or fault traces) might warrant consideration: this has been successfully undertaken recently in New Zealand for the purpose of disaster risk management at both regional and local government levels.

There is a lack of a 'big picture' for disaster risk management. Disaster risk management apparently hasn't come together, and the system is ad hoc. The development of a strategic framework is widely regarded as being necessary. In a similar manner, hazard mitigation is not regarded as being sufficiently embedded within the current operational framework: the Philippines disaster risk management arrangements are seen as being too response focused. Greater consolidation toward a holistic risk reduction model is advocated.

An area requiring consolidation pertains to the education and training of local officials in disaster management. Currently, training programs are not compulsory for personnel designated with disaster management tasks. Moreover, the OCD is unable to provide systematic training for local government unit (LGU) personnel primarily because the Emergency Management Institute of the Philippines (EMIP), linked to the Armed Force of the Philippines (AFP), has a first priority to train AFP staff; it does not have the resources to extend far beyond this group. Moreover, OCD doesn't know how the training material it does provide LGUs is being used.

The need for greater coordination is well recognised by almost all the agencies involved in disaster management, although the term itself has an undertone. In the Philippines 'coordination' connotes a top-down oversight function rather than a proactive,

participatory and encouraging orientation. Hence, as it is practiced in the disaster management area, coordination does not offer much.

Financial Issues:

- There appears room for improvement in many other cities and municipalities of Metro Manila in terms of strategic spending in preparation for disasters in all phases of the disaster cycle.
- In the long term, different sources of funding need to be mobilized. Fund raising mechanisms must be devised early in the process of acquiring more stable and reliable funding. Some advocacy and lobbying for funding may be required. It is essential also that city authorities network with NGO's and PO's for pooling of resources. The financial needs may also be met by maximizing the resources of the community wherein some form of equity from the people might be obtained.
- Mainstream disaster management activities may require a city ordinance for automatic funding or allocation of bigger budget by the city government for disaster prevention mitigation and response. This is especially necessary when a comprehensive disaster management plan is prepared and implemented. For instance, money is required to maintain shelters in the mid to long term.
- Insurance and re-insurance may also be utilized as financial tools to deal with the impacts after a disaster.

Public education and awareness

- Information to make people aware of disasters and prepared to deal with them should be disseminated through: a formal approach, i.e., through seminars, workshops, symposiums, inclusion in school curriculum, and an informal approach through "trimedia" (radio, TV, print), information and education campaign (IEC) materials, drills and scenarios. The media should be invited to get involved. Information technology (IT) should also be utilized.
- Community based disaster management should be continued, strengthen, and institutionalized.
- A comprehensive training program on disaster management incorporating public education and awareness can be devised and implemented to train teams and trainers.

Disaster management and information

- The latest, necessary and adequate study and information should be provided to the public to enable them to make their own decisions and be responsible for their own actions. For example, data and information from results of disaster risk assessment, and research and development findings should be shared.
- Existing capacities concerning hospitals, health and other health facilities (including evaluation shelters) should be made known to the public at the soonest. The emergency management system (EMS) must be made accessible to end users. Data formats particularly related to maps and GIS should also be standardized.

Institutional/legal framework and inter-institutional coordination.

- It is essential to establish linkages among academia, NGOs, lifeline service providers (e.g., water, power, telecommunications, etc.), and local government through memoranda of understanding or memorandum of agreements. To ensure attention is given when required, a referral system among the providers can be institutionalized.
- A new legal framework with appropriate institutional arrangements is advocated. Implementation of such legal framework and institutional arrangements must further strengthen the disaster management sector.

Capacity Building

- Local Disaster Coordinating Councils must be strengthened. This can be done immediately through training on disaster management at schools and at the barangay level held regularly or annually. Disaster preparedness can be included in the school curricula over the medium term. Volunteers and members of the community can be trained while organized personnel can be recruited and trained as needed. Volunteers may need necessary equipment over the long term. It is necessary to start sharing information including those from disaster risk assessments from now and onwards.
- Strategies to encompass the desired actions could cover:
 - Support to the disaster risk management master plan by all heads of city government irregardless of political affiliations and tenure of office will be obtained
 - Organizing advocacy groups to lobby for legislation of ordinances.
 - Empowering communities.

Appendix A: Implementing Rules and Regulations of PD 1566 (see page 4)

Disaster management activities of DCC member-agencies and procedures and guidelines for inter-agency coordination and dissemination of information as stated in the PD 1566 ²³:

1 Pre-Disaster Phase

1.1 Planning for Disaster

Development/formulation of Disaster Management Plan (DMP) to be submitted to the RDCC through the OCD for review and evaluation. The plan should conform to the guidelines in the NCDPP and shall be revised/updated as necessary.

1.2 Organizing

1.2.1 Organization of DCCs in accordance with the DCC structure set forth in the NCDPP, supported with a Sanggunian Resolution.

1.2.2 Establishment of DCC guidelines for inter-agency coordination/networking.

1.3 Training

Conduct of training on disaster management for DCC members; skills training for DCC operating teams, volunteers and community members in coordination with the following agencies:

OCD provides guidance and assistance in the development/preparation of programs of instruction and the conduct of training; DSWD provides guidance in the conduct of disaster preparedness of the barangay tri-sectoral group focused on relief; PNRC conducts disaster leadership training courses; DECS assists in the public education campaign through integration in school curricula of subjects relative to disaster; DTI trains disaster control groups/reaction teams in large buildings used for commercial purposes.

1.4 Drills

Conduct of organizational and community drills/exercises periodically in order to assess effectiveness in responding to disasters. OCD shall assist/observe and provide critique in the conduct of drills and exercises.

1.5 Stockpiling

1.5.1 Pre-determination of food, clothing, shelter, medical supplies, transportation and other emergency requirement.

1.5.2 Takes appropriate measures to stockpile the same.

1.6 Resource Data Canvassing

1.6.1 Identification of existing resources.

1.6.2 Evaluation of capability of resource organizations to carry out disaster-related tasks.

1.6.3 Allocation of suitable roles to resource organization.

1.7 Public Information/Awareness Drive

Conduct of public information/awareness campaign in coping with disaster situations in coordination with the Office of Civil Defense, Philippine Information Agency as well as other government/or private entities with facilities for dissemination of information.

1.8 Communications and Warning Activities

1.8.1 Organization of warning units in the province.

1.8.2 Establishment of a warning system that must be clearly defined and written down in plans, standard operating procedures and other relevant documents.

1.8.3 Inform concerned officials and agencies in the province as well as the general public of the warning system.

2 Disaster Phase

2.1 Mobilizes all emergency services of the DOC, namely, rescue and engineering, evacuation, first aid and medical services, emergency relief, police and fire auxiliary, transportation and survey and damage assessment with the national government supporting the efforts of the Council.

2.2 Evaluation of survey results and submission of damage report and recommendation to NDCC through the RDCC.

3 Post-Disaster Phase

3.1 Cross-checking of data

Cross-checking of damage report with pre-emergency data obtained to facilitate the location or whereabouts of persons and to assess available community resources for rehabilitation purposes.

3.2 Rehabilitation Requirements

Determines the nature and extent of rehabilitation efforts to be undertaken and requests for assistance from appropriate government agencies, private offices/agencies or individuals, if the situation goes beyond the capability of the PDCC.

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